

CURRITUCK NATIONAL WILDLIFE REFUGE

Currituck County, North Carolina

ANNUAL NARRATIVE REPORT

Calendar Year 2001

Refuge Manager

Date

Associate Manager Review

Date

Regional Office Approval

Date

Introduction

Currituck NWR is located in the northern part of Currituck County, North Carolina, along the Outer Banks barrier island chain. The Currituck Banks are part of an extensive coastal lowland that stretches from Newfoundland southward to Florida, and westward into the Gulf of Mexico. Along the Currituck Banks, inlets have periodically formed and reformed depending on storms, amount of sedimentation, tidal heights, and degree of vegetation on the barrier beach. At the present time, the closest inlet to the south is Oregon Inlet and to the north, Chesapeake Bay.

Acquisition of Currituck NWR was intended to preserve and protect a part of the NC Outer Banks, one of the largest undeveloped coastal barrier ecosystems remaining on the East Coast. Service ownership ensures perpetuation of basic wetland functions, including nutrient cycling, floodplain and erosion control, and will help preserve the role of Currituck Sound estuaries as nurseries and important waterfowl wintering areas. Ownership of the protective buffer east of the productive marshes bordering the sound protects the marsh from direct pollution sources associated with development.

The Outer Banks remained isolated from the mainstream of activity in early America, and those few people who lived there relied heavily on activities associated with the area's natural values for their subsistence. Activity in the Currituck Sound area reached a peak in the late 1800's when commercial fishing and market hunting were at an all time high. A number of hunting clubs were established for sport hunting of waterfowl and drew much of their membership from affluent northern businessmen and professionals.

The navigation hazards along the Outer Banks resulted in numerous shipwrecks along the coast. Lifesaving stations were established along the beach; several still exist. One station is located on an inholding within the Swan Island Unit and is used as a seasonal residence by a private citizen. The Currituck Lighthouse at Corolla still functions throughout the year.

During 1975 and 1976, The Nature Conservancy (TNC) acquired several parcels of land on the Currituck Outer Banks. The two major tracts of land were being utilized by the Swan Island and Monkey Island Hunting Clubs. Funds to purchase these areas were provided by the Mellon Foundation, a sponsor of the National Wetlands Project. TNC transferred approximately 500 acres of the Monkey Island Tract to the State of North Carolina for inclusion in the National Estuarine Sanctuary System as the Currituck Banks component. A narrow strip from sound to sea of about 50 acres was retained by TNC between the Sanctuary and the Monkey Island Tract.

The Migratory Bird Conservation Commission (MBCC) met to consider the Currituck Refuge on August 2, 1983. The MBCC approved the boundary of the refuge for the Monkey Island Unit and the Swan Island Unit. Two phases of acquisition resulted in 1,770 acres in fee title, 166 acres in conservation easement and some hunting blind rights. The 54-acre County Marshes Unit was acquired on May 18, 1988, through a trade with Currituck County, NC, for Monkey Island and the Waterlily Tract. The county agreed to repair the historical structures on the island, create an environmental education program for school children there, and conserve the waterbird nesting area within ten years or the property would revert back to the refuge. In 1998 the county decided not to

spend the money to complete repairs to the structures and allow the property to revert back to Service ownership. Additional acquisition included the Currituck Marsh Unit (1,142 acres) in September of 1997, the McLean Garner tract (Station Landing Unit, 247 acres) in April of 1998, and the Ocean Associates tract (South Marsh Unit, 882 acres) in November 1998, bringing the total refuge acreage to 4,099 acres in fee title and 3,931 acres in conservation easements.

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A. HIGHLIGHTS

Three new hunting blinds were added in the South Marsh Unit (H.8).

B. CLIMATIC CONDITIONS

As an unmanned refuge, weather is not monitored on the Currituck NWR. Weather is monitored at Mackay Island NWR. See Mackay Island NWR Section B, Table 1.

C. LAND ACQUISITION

1. Fee Title

Staff continued to pursue the acquisition of tract 15. One of the main obstacles is a dump site discovered last year during a Contaminants Survey. The Service recommended that the dump site be cleaned up in order to satisfy NC Division of Waste Management standards before being acquired. Carova Corporation (owners) submitted a proposal for cleaning up the dump site which was forwarded to the NC Division of Waste Management for review.

2. Easements

RM Baird met with Garland Pardue and Tracy Rice of the Raleigh Ecological Service Office, Currituck County Manager Bill Richardson, Mark Bissell of Bissell Professional Group and Pat McDowell on May 23 to discuss the proposed easement on Currituck NWR. The easement is for a nearby well site for the new water system on the Currituck County portion of the Outer Banks. This preliminary meeting went well. The technical data will be reviewed to determine compatibility.

D. PLANNING

4. Compliance with Environmental and Cultural Resources Mandates

RM Baird met with David Allen of the North Carolina Wildlife Resources Commission and representatives from the U.S. Army Corps of Engineers, North Carolina Division of Coastal Management, and USFWS Migratory Bird Office on November 29 on Monkey Island to discuss possible project proposals for the stabilization of the island. Monkey Island, a small island of the Currituck NWR, provides habitat for colonial waterbird nesting. This is the only known mixed heron nesting sight in the northern region of North Carolina. Many good ideas were discussed and possible funding sources may be available. Funds from the U.S. Army Corps of Engineers may be the most likely source.



The Deterioration and Erosion of Monkey Island

6. Other

RM Baird met with Barb Blonder of the North Carolina Estuarine Research Reserve (NCERR) May 4 to review potential sites for a Visitor Contact Station in Corolla, NC. In November RM Baird met with Jim Bickford, a local developer in Corolla, to discuss a possible land swap between the developer and the NC National Estuarine Research Reserve. The idea was to acquire a small plot of land next to the NCNERR to build a small Visitor Contact Station/Research facility to be jointly managed by the USFWS and NCNERR. The idea is being further evaluated.

E. ADMINISTRATION

As an unstaffed satellite refuge, Currituck is managed by the staff at Mackay Island. Three volunteers from Northwest Naval Communications Base assisted with office work and piping plover surveys on Currituck NWR.

F. HABITAT MANAGEMENT

1. General

Currituck NWR is located on the Currituck Banks stretch of North Carolina's Outer Banks barrier island. The Currituck Outer Banks are primarily maintained by a variety of coastal processes including long shore currents, tides and tidal currents, wave action, storm surges and wind action.

These dynamic forces cause shorelines to undergo constant change. The adaptability of this coastal strand to constant physical change is a major part of their natural ecology. The following table indicates the approximate acreage of each major habitat type:

TABLE 1 Habitat Types		
HABITAT TYPE	APPROXIMATE ACRES	PERCENTAGE
Marsh	2,202	54%
Maritime Shrub	778	19%
Maritime Forest	637	16%
Beach Front	202	5%
Managed Wetlands	143	3%
Maritime Grasslands	137	3%
TOTAL	4,099	

2. Wetlands

Two types of wetland areas are situated across the three major land tracts of the refuge; these include the brackish water marshes that border Currituck Sound and the wetland flats between the primary dunes and secondary dunes.

The most extensive area of the interdunal flats occurs on the Swan Island Unit where the refuge operates a water control structure. This structure is situated on a creek on Currituck Sound (In the early to mid-1880's, this was the "Old Currituck Inlet", passable by large sailing vessels). The structure is adjusted to maintain moist soil conditions by trapping rainwater to promote moist soil species. Since no pump facility exists, rainfall and evaporation are the major factors in determining water levels. Due to drought conditions during the fall and winter months, very little habitat was provided for waterfowl. Large portions of woody vegetation were disked under during the summer. The southern end of the area was disked in June to eliminate woody vegetation. No vegetation transects were completed in 2001.

The emergent marshes along the west side of the refuge units are dominated by *Juncus roemerianus*, *Typha* spp., and *Spartina cynosuroides*. These sizeable marshes are influenced by wind tides. Management is limited to prescribed burning and the maintenance of wood duck boxes.

3. Forests

Forty-eight percent of the total refuge consists of maritime shrub and forest habitat. A dense shrub thicket occurs on the protected west side of the primary dune system. Dominant shrub species include American holly, yaupon holly, wax myrtle, and live oak. Farther west from the primary dunes, a low, laterally branching maritime forest dominated by live oak and red cedar is found. West of the secondary dunes the forest becomes taller and exhibits a more open canopy where loblolly pine is dominant. All of these shrubs and woodland areas provide important resting and cover habitat for neotropical passerines and raptors.

6. Other Habitats

Approximately 243 acres of beachfront and sand dune are contained within the Swan Island and Monkey Island tracts. The refuge's fee title ownership extends along the beachfront out to the mean high water line. The intertidal zone falls within the state's ownership according to state law.

9. Fire Management

Two prescribed burns occurred this year burning a total of 854 acres. The burned areas were the 22-B and 22-A sections of Currituck Marsh. Three wildfires occurred this year burning a total of 52.5 acres. Sandy Haul/Moccasin Creek had a half-acre wildfire, Wishes Hammock had a 2-acre wildfire, and Swan Island conservation easement had a 50-acre wildfire.

11. Water Rights

RM Baird completed summarizing the findings of the navigable waters research and presented a paper to the RTNCF Ecosystem team on February 13, 2001. The results of the discussion were to work with the Ecoteam refuge managers to develop a proposal to take to the states to develop management agreements regarding improved control over critical navigable waters.

G. WILDLIFE

On May 25 ARM Smith and interns Monica Kaiser and Amy Geddie assisted staff from the NC Wildlife Resources Commission in a bi-annual survey of the Monkey Island rookery. Hundreds of nests of egrets, glossy ibis, and herons were counted along with fourteen healthy cottonmouths.



Faces Only a Mother Could Love at the Monkey Island Rookery

1. Wildlife Diversity

A rich wildlife diversity occurs across the Currituck Outer Banks due to the diversity of habitats along this area. Avian species comprise the bulk of the wildlife diversity as indicated by over 240 species having been documented at Back Bay NWR which lies some ten miles north of Currituck NWR. The Currituck Outer Banks serves as a migration corridor for a variety of birds such as accipiters, falcons, neotropical warblers, shorebirds, gulls, terns, and many waterfowl species. Periodic monitoring covers waterfowl and the threatened piping plover.

2. Endangered and/or Threatened Species

Summer interns provide the vast majority of biological data for the refuge by surveying for piping plovers, sea beach amaranth, and sea turtle nesting and strandings. No piping plover nests were detected this year and few sightings occurred during migrations. They were also unsuccessful in locating sea beach amaranth. Sea turtle strandings were recorded between May and October. There were three turtle strandings this year and of these two were loggerheads and one was a leatherback. There were no turtle nests located. Daily turtle "patrols" were not conducted this year. The increase in beach driving over the past few years makes turtle crawls difficult to detect and likely discourages nesting activity.



Leatherback Sea Turtle Stranding

3. Waterfowl

Staff completed six aerial waterfowl surveys of the entire refuge between November 1, 2000 and February 27, 2001. The survey data is summarized in the following tables:

<p>TABLE 2 Wintering Waterfowl Occurrence 2000-2001</p>					
GROUP	PERCENT	NUMBER OF USE DAYS	PERCENT DIFFERENCE FROM 1999- 2000	PEAK NUMBER	PEAK PERIOD
Tundra Swans	28.2	44985	-46.9	1166	02/08/01
Canada Geese	4.5	7130	-63.3	160	01/06/01
Snow Geese	3.3	5250	-92.8	300	02/27/01
Ducks	62.9	100502	-83.6	1572	01/06/01
Coots	1.2	1925	-99.3	50	11/16/00
All Waterfowl	100.0	159791	-85.2	2014	02/27/01

All waterfowl use was down -85% for the 2000-01 season. Coot numbers dropped the most with only 50 birds seen at any one time, which is a -99% decrease from last year. Tundra swan numbers dropped the least with a -47% decrease from last year. The peak period for all waterfowl was the end of February.

TABLE 3
Composition of Wintering Ducks
2000-2001

SPECIES	PERCENT	NUMBER OF USE-DAYS	PERCENT DIFFERENCE FROM 1998- 1999*	PEAK NUMBER	PEAK PERIOD
G. W. Teal	6.9	10980	-84.7	680	11/01/00
Gadwall	17.5	27890	-90.2	455	01/06/01
Mallard	10.8	17208	-49.7	342	02/27/01
Black Duck	22.3	35633	-67.8	625	01/06/01
Wood Duck	0.0	0	-100	0	0
B. W. Teal	0.0	0	0	0	0
Shoveler	0.0	0	-100	0	0
Wigeon	1.4	2247	-97.6	88	11/01/00
Pintail	3.5	5672	-40.6	177	01/06/01
Ruddy Duck	0.4	595	-83.1	17	01/06/01
Bufflehead	0.0	0	-100	0	0
Merganser	0.1	174	-57.8	6	02/08/01
Ringneck	0.0	0	-100	0	0
Canvasback	0.0	0	0	0	0
Unknown	0.0	0	0	0	0
All Ducks	62.9	100502	-85.2	1572	01/06/01

All duck use was down -85% this winter with a peak number of 1572 seen at any one time. And all other duck use numbers were down at least -40% from the previous year. The peak time period for these ducks was early January.

TABLE 4 WOOD DUCK BOX PROGRAM NESTING YEAR - 2001		
	NUMBER	PERCENT
Total usable boxes	17	100
Total boxes checked	17	100
Estimated boxes used by wood ducks	9	53
Number of boxes with dump nests	0	0
Estimated boxes used by other ducks	0	0
Estimated boxes used by other wildlife	0	0
Estimated wood duck broods produced	3	18
Estimated wood ducks hatched	13	---

Wood ducks

Wood duck nesting boxes located within the Currituck Marsh Unit of the refuge were monitored for production this year. The data that was collected from the 17 remaining boxes is summarized in the above table. Of the 17 boxes available to the wood ducks, nine were utilized by wood ducks. No other species were known to use these boxes this year. Out of the nine used, only three broods were estimated to have been produced.

4. Marsh and Water Birds

Many of the 20 species of marsh and water birds that use Mackay Island also frequent wetlands of Currituck NWR either year round or seasonally. Most heron use is by great blue, little blue and green-backed herons. Common egrets, snowy, and cattle egrets are found on the refuge throughout the year. Glossy ibises and tri-colored herons seasonally frequent refuge marshlands. Other seasonal water bird use is derived from coots, pied-billed grebes, and double-crested cormorants. King and Virginia rails, are the most common rails on most refuge tracts. Infrequent marsh birds include sora, clapper rails, and least bitterns

5. Shorebirds, Gulls, Terns and Allied Species

The coastline of the Currituck Banks provides important migratory habitat for a variety of shorebirds during their spring and fall passages. The beach of the Currituck Outer Banks are especially valuable during shorebird migrations due to the lack of regularly exposed tidal (i.e.,

lunar) mudflats in Currituck Sound and Back Bay where irregular wind tides infrequently expose mudflats in these areas. Several species using this beachfront such as sanderling, least sandpiper, and black-bellied plovers are recognized by the Service as species of special concern, which have probably suffered recent declines in their continental populations. Sanderling, ruddy turnstone, semipalmated plovers, and black-bellied plovers are among the most abundant migrants along the Currituck Banks during both migrations.

The Flats, high refuge marsh, and irregularly exposed mudflats on the Currituck Sound are foraged over by greater and lesser yellowlegs, solitary and spotted sandpipers, and by willet during spring and fall migrations. Exposed mudflats on the east side of Currituck Sound are heavily used by yellowlegs, semipalmated plovers, and other shorebirds for protection and forage zones during spring Nor'easter storms.

A variety of gulls and terns use the beachfront and other water areas of the refuge tracts. Ring-billed, herring, great black-backed, and laughing gulls are the most common gulls. Common, royal, sandwich, Forester's and least terns frequent the refuge beachfront from spring through fall.

6. Raptors

Moderate numbers of raptors use the refuge during the fall migration. Stopovers are made by American kestrels, sharp-shinned hawks, merlin, and Cooper's hawks. Northern harriers are commonly seen over marshlands from December through March. Osprey are common and nest on platforms and trees throughout the refuge.

15. Animal Control

Unfortunately, several types of non-native animals including feral horses, feral pigs, and domestic cattle have been left to range over refuge tracts. Also, with the increased numbers of year-round human residents, no doubt there are also domestic pets on the Currituck tracts. By far, the most prominent issue in recent years has been the existence of what the locals refer to as the "wild" horses.

The origin of the horse herds on the Currituck Banks is unclear. Little has been done to control their numbers and competition with native plants and wildlife has been apparent in recent years. The horses are commonly found in the inter-dunal flats and along the beachfront grazing on native grasses and herbs; again, with the population upswing of full-time residents, the horses are increasingly found near the beachfront homes grazing on grass yards and ornamental flowers and shrubs as well as seeking shelter in the leeward side and carports of the homes.

A board has been established by the county to manage this herd of horses. RM Baird is serving as a chairperson of this Wild Horse Advisory Board.



The Vicious Feral Goats of Carova

RM Baird attended the Currituck Wild Horse Advisory Meeting on June 27. Topics discussed were the bylaws for the group, the need for a census, a possible horse auction and the "Back Bay" band of horses that continues to return to Virginia. RM Baird attended another Wild Horse Advisory Board meeting on October 10 in Corolla, NC. The group continues to move toward better management of the feral horses along the outer banks of Currituck County, NC.

On September 12 RM Baird met with the Currituck Banks Wild Horse Advisory Board and John Stasko, Refuge Manager at Back Bay NWR, Kyle Barbour, Park Manager at False Cape State Park, and a representative of the Sandbridge Civic League to discuss the horses that continue to wander into Virginia. A second horse fence at the Virginia/North Carolina State line was proposed to help keep these feral horses in North Carolina. The Corolla Wild Horse Fund will work with Mr. Barbour on a specific proposal and the permitting details for the construction of the fence.

H. PUBLIC USE

1. General

The refuge is open to beach activities, hiking, birdwatching and photography with visitation estimated at 5,000. Travel to the refuge is via NC 12 to Corolla and then northward on the beach between the dune line and the ocean. Over 30,000 vehicles travel the beach each year to access the communities of Ocean Beach, Seagull, Swan Beach, North Swan Beach and Carova Beach. It is also the only route for surfers, sunbathers and surf-fishermen. The refuge presently has no

facilities or trails, but visitors may freely explore the dunes and maritime forests during daylight hours. Camping, fires and free roaming pets are not permitted.

5. Interpretive Tour Routes

The North Carolina National Estuarine Research Reserve (NCNERR) - Currituck Banks Unit, held their annual Local Advisory Board Meeting on October 10. The Currituck NWR Refuge Manager is a member of this board. RM Baird attended the meeting and the field trip to the Sound-to-Sea boardwalk. The boardwalk is in the final construction stage and should be open to the public by the end of October. This has been a partnership project between NCNERR, The Nature Conservancy, and the Currituck NWR. Phase two of the project is to complete a northern extension to the trail up to the refuge. Planning for this phase is ongoing.

8. Hunting

Refuge staff added three new blinds to the waterfowl hunt, all of which were constructed on the South Marsh Unit with the assistance of NCWRC staff. Due to their location, the check-in and standby draw for these blinds were held at Currituck Sports off Hwy. 158, near Coinjock, NC. The blinds were not hunted very regularly.

Six personnel from the NC Wildlife Resources Commission joined refuge staff to "bush" the eight public hunting blinds on Currituck NWR in October for the upcoming hunting season.



Two Generations of Duck Hunters

In a partnership with the NC Wildlife Resources Commission and the Currituck Waterfowl Association, the refuge helped coordinate a youth hunt in the county on January 26-27. ARM Smith guided two youth and a father utilizing one of the refuge blinds. It was a fun and educational experience for all participants.

TABLE 5 Currituck NWR Waterfowl Hunt 2000-2001		
	NUMBER	PERCENT
Hunt Days (hunt days available X 8 blinds)	144	
Parties checked-in	85	73%
Stand-by parties assigned	31	27%
Use Days (by hunting parties)	116	81%
Parties returning harvest data cards	101	87%
Total birds reported harvested	369	
Average number of birds harvested by party	4.3	

17. Law Enforcement

Refuge Officers patrolled on an irregular basis due to the 1.5 hour drive around Back Bay and down the beach. The portable building (CONEX) was moved from the Swan Island Unit to the Station Landing Marsh Unit in 1998, which cuts boat access to five minutes from the public landing on Brumley Road. The CONEX holds ATV's, posts, signs and tools to maintain nearly everything. A total of 82 law enforcement patrols were made this year.

NC Wildlife Officers and Currituck County Deputies patrol the beach and have been very cooperative in reporting violations of refuge regulations. A permit system was established in March 1997, for all ATV's and motorcycles. Previously, anyone could ride their ATV's on the beach, with no restrictions. The new rules require a permit for each ATV or motorcycle and prohibit persons under 16 from riding them. A change in the system this year limited permits to Currituck County residents and property owners only. The daily and weekly permits were eliminated. The county also restricted camping and bonfires on the beach last year, which eliminated many past problems with drunkenness, fire debris and camping litter.

TABLE 6 Statistics			
Type of incident	# Reports	Violation Notice	
Arson	2		
Assist Other Agency	8		
Firearm Violation	1		
Hunting Violation	1		
Littering	1		
Theft of Government Property	1		
Traffic Violation	4	3	
Trespass: Vehicle Off Road	106	7	
Vandalism	7 (\$135 damage)		
TOTAL	131	10	

18. Cooperating Associations

RM Baird worked on a modification for the Memorandum of Understanding between the Service, The Nature Conservancy and The North Carolina Estuarine Research Reserve. The current MOU expired in April 2001.

J. OTHER ITEMS

4. Credits

Compiled and edited by 2003 intern Kelsey Piper and 2004 intern Tara Moore

Photo Credits

Refuge staff